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Spears

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[54] **METHOD OF DRUG APPLICATION IN A TRANSPORTING MEDIUM TO AN ARTERIAL WALL INJURED DURING ANGIOPLASTY**

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Related U.S. Application Data

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[51] **Int. Cl.**[5] **A61M 29/00**

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[58] **Field of Search** 604/96, 101, 113; 606/7, 8, 13-15, 192-195; 600/36; 623/1, 12; 128/395, 397, 398-401, 402

[56] **References Cited**

U.S. PATENT DOCUMENTS

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[57] **ABSTRACT**

A method for treating a lesion (27) in an arterial wall (28) having plaque (52) thereon and a luminal surface (29). The arterial wall (28) has typically been mechanically injured during an angioplasty procedure. As a result of that procedure, the arterial wall (28) and the plaque (52) include fissures (24) defined therein. It has been found that those fissures (24) form excellent sites at which a bioprotective material (26) may become bonded upon application of thermal energy. The method comprising the steps of positioning an angioplasty catheter (20) adjacent to the lesion (27) being treated; delivering a soluble sleeve containing bioprotective material (26) between the arterial wall (28) and the angioplasty catheter (20) so that the bioprotective material (26) is entrapped therebetween applying thermal energy to the lesion (27), thereby liquifying the sleeve and bonding the bioprotective material (26) to the arterial wall (28) and within the fissures (24); removing the angioplasty catheter (20), the bioprotective material (26) remaining adherent to the arterial wall (28) and within the fissures (24); cooling the sleeve so that it becomes solidified; releasing and removing the angioplasty catheter (20) from the site being treated, whereupon the soluble sleeve is irrigated away by blood (50) flowing adjacent thereto, leaving an insoluble material semi- or permanently bonded to the fissures (24) of the arterial wall (28), despite contact with blood (50) flowing adjacent thereto.

63 Claims, 3 Drawing Sheets